SERVING THE NEEDS OF ALL THROUGH BETTER DESIGN

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Automated Vehicles Symposium
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The Power of Mobility
Center for Inclusive Design and Environmental Access (Mission)

• Founded in 1984, the primary goal of the IDeA Center is to produce knowledge and tools that will increase quality of life for groups who have been marginalized by traditional design practices.

• The IDeA Center is a multi-disciplinary research center with architects, urban planners, occupational therapists, industrial engineers, and social scientists.
Our Work

- We are the leading R&D center on universal design and environmental accessibility in North America
- Laboratory simulations to test out new features and products
- Field research to study systems in use
- Surveys of stakeholders
- Publications, including the first comprehensive text on universal design and the first book on accessible public transportation (upcoming)
- Continuing education
Universal Design

A process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation.

Steinfeld and Maisel (2012)

Elevator message:
Making things easier to use, healthier, and friendlier.
<table>
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<th>Universal Design</th>
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The Potential

Transporting people who are dependent (kids, elderly)

The Broader Market
Reducing Dependency

Photo credit: http://www.impruve.org/
Avoiding Exclusion


Photo credit: http://washington.cbslocal.com/2016/06/18/driverless-bus-to-begin-frequenting-dc-streets
Getting In and Out of Vehicles
Getting In and Out of Vehicles
Getting In and Out of Vehicles

Problems reported by 100 older drivers and passengers (Steinfeld et al. 1999)

- Getting legs in and out
- Fastening seat belts
- Sliding in and out
- Rear seat access
- Step down into the vehicle
- Stepping up into the vehicle
- Reaching doors to close
- Bending head down to get in the door
- Storing mobility devices
- Bending at the waist while getting in or out
- Opening Doors
- Storing packages
- Using the door locks
- Using door handles
Securement

4–Point (n=36)

Quantum (n=36)
Securement
Communications

Driving While Scottish
Communications
Concluding Messages

• Practicing universal design brings the benefits of automated vehicles to all

• Consider the diversity of riders at the conceptual stage and follow through with constant improvement

• Get out ahead of regulators by adopting an inclusive approach

• Use universal design to improve performance and broaden markets
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